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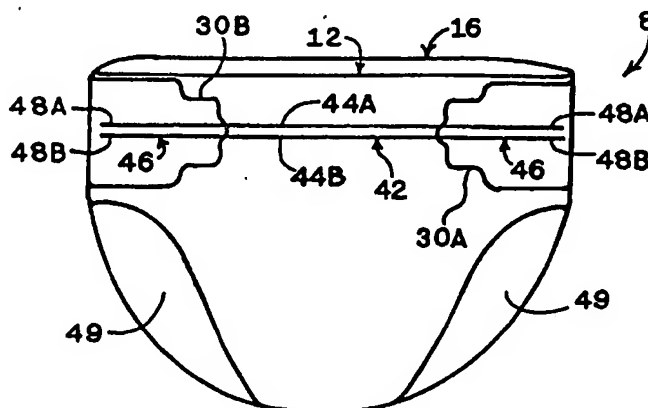
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(57) Abstract

A fastener system for use with personal care articles including a substrate typically formed by a bodyside liner and an outer cover. Fastening tabs, including securing elements, are secured to the substrate at opposing sides of the rear portion of the article. First alignment indication symbolism is located on the front portion of the substrate. Second alignment indication symbolism is optionally located on the respective fastening tabs. In use, a user aligns the fastening tabs with the first indication symbolism on the front portion, preferably aligning the second indication symbolism with the first indication symbolism, and secures the tabs thereto. In this manner, the personal care article is properly fitted to the wearer, with the fastening tabs a predetermined distance from the front edge of the personal care article. The first indication symbolism can comprise e.g. lines extending across the width of the personal care article, or outlines of the distal edges of the fastening tabs. Second indication symbolism can comprise lines extending across at least a portion of the lengths of the fastening tabs. In other embodiments, the indication symbolism on the front portion can comprise at least two groups of outlines of the outer edges of the respective fastening tabs.

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ALIGNMENT INDICATORS FOR USE WITH PERSONAL CARE ARTICLES

FIELD OF THE INVENTION

5

Personal care articles such as infant diapers, training pants, adult incontinence products, and the like are well known. Such articles have achieved a wide acceptance due to their ability to receive and absorb body exudates.

10 This invention pertains to alignment indicators for use with fastener systems for such articles. The alignment indicators comprise indicia that assist in proper positioning of fastening tabs with respect to the front edge of such a personal care article. In some embodiments, indicia are located on the fastening tabs as well as on the front portion of the personal care article. The indicia are aligned or otherwise suitably oriented when the fastening tabs
15 are secured to the front portion of the personal care article.

BACKGROUND OF THE INVENTION

20 In general, personal care articles should comfortably fit the body of a wearer. Personal care articles generally have fastening tabs at the rear of the personal care article that extend outwardly and secure to a front portion of the article. For the personal care article to be effective, the fastening tabs should be properly placed on the front portion of the personal care article.

25 In the past there has been little thought or concern as to the positioning of the fastening tabs with respect to the front edge of the personal care article. One conventional approach to the subject of tab placement includes a pattern of dots or vertically oriented lines. The dots or lines enable a user to ensure that both fastening tabs are secured to the front portion of the personal care article at approximately the same distance from the center of the front portion.
30 After the first fastening tab is secured, the indicia can be utilized to secure the second fastening tab at a corresponding location, horizontally, on the opposing side of the article. Thus the leg openings are ensured of being approximately the same size. Such indicia assist the user in placing the two fastening tabs approximately the same height relative to the front edge of the

front portion of the personal care article. However, there is no specific indicia indicating a specific selected location for the fastening tabs relative to the front edge of the front portion of the personal care article.

5 Proper positioning of a personal care article on a wearer can be difficult. Personal care articles, for example, can be difficult to properly position on the intended wearer due to leg movements or body movements of the wearer. Such movement creates difficulty in affixing the fastening tabs at proper locations. If the fastening tabs are placed too high on the front portion of the personal care article, part of the securing portion may extend beyond the front edge of
10 the front portion of the article, and thus may contact and irritate the skin of the wearer. Such improper placement can also cause improper leg fit and create leg gapping which potentially may cause leakage.

In the instance when the fastenings tabs are placed too low on the front portion of the absorbent article, the leg openings tend to be drawn too tightly,
15 at least at the top front portion of the leg opening. Further, the front edge of the personal care article may roll or gap at the waist due to the lower positions of the fastening tabs. Rolling up of the personal care article can cause discomfort to the wearer and could result in waist gapping and leakage. Therefore, it is important to ensure that the fastening tabs are secured on the
20 front portion of the personal care article at a selected predetermined distance from the front edge.

Further, it is preferred, for proper fit, that the fastening tabs are drawn directly across the front portion of the personal care article, and placed at a proper angle to the front edge. An improper angle can cause twisting of the
25 fastening tab, and improper fit for the personal care article.

SUMMARY OF THE DISCLOSURE

5 The present invention relates to a personal care article having a front portion including a front edge, a rear portion including a rear edge, and a crotch portion. The personal care article comprises a substrate including an outer cover, and a bodyside liner in facing relation with the outer cover. First and second fastening tabs extend outwardly from the substrate at opposing sides of the rear portion of the personal care article. The first and second fastening tabs include securing elements at the respective inner surfaces of the
10 respective tabs.

In preferred embodiments, indicia on the substrate at the front portion of the personal care article specifically guide a user regarding positioning of the fastening tabs with respect to the front edge when the tabs are secured to the front portion of the personal care article.

15 In preferred embodiments, indicia on the front portion of the personal care article comprise first indicia, the fastening tabs include second indicia cooperating with the first indicia in specifically guiding a user regarding positioning of the fastening tabs when the fastening tabs are secured to the front portion of the personal care article. The second indicia on each of the
20 fastening tabs generally are aligned with, and overlies respective portions of the first indicia when the fastening tabs are secured to the front portion of the personal care article thus ensuring proper longitudinal alignment of the fastening tabs with respect to the front edge.

In some embodiments, the indicia comprise at least one line extending across
25 the front portion of the personal care article at a predetermined distance from the front edge of the personal care article. In some embodiments, the at least one line is substantially parallel to the front edge of the personal care article. The second indicia can comprise at least one line at least propinquant a distal edge of each fastening tab. The second indicia can be a line on the
30 outer surface of each fastening tab generally extending in a line substantially parallel to the rear edge of the personal care article.

In some embodiments, the second indicia line on the outer surface of each fastening tab, and the first indicia line on the front portion, when in proper

alignment, in combination, substantially give the appearance of a single line extending across the fastening tabs and across substantially the entire front portion of the personal care article when the article is secured to the body of a wearer.

5 In some embodiments, the second indicia extend substantially the entirety of the length of the outer surface of at least one fastening tab.

In some embodiments, the indicia located at the front portion of the personal care article extend across a longitudinal axis which extends through the center of the front, rear, and crotch portions.

10 In some embodiments, the indicia have a length of at least about 1 inch, preferably a length of at least about 4 inches, and most preferably a length of from about 4 inches to about 6 inches.

In some embodiments, the personal care article includes an absorbent body located between the outer cover and the bodyside liner.

15 In some embodiments, the first indicia comprise at least two lines parallel to each other, the second indicia comprise at least two lines on each fastening tab parallel to each other, the parallel lines in the first and second indicia on the front portion and on both tabs cooperating with each other to guide a user to bring the lines in the first and second indicia into alignment
20 respectively with each other when the fastening tabs are secured to the front portion of the personal care article, thereby to give the appearance of two parallel lines extending across the fastening tabs and across substantially the entire front portion of the personal care article. The two parallel lines preferably have two different colors.

25 In some embodiments, the first and second fastening tabs have curvilinear distal edges, the indicia on the front portion of the personal care article representing at least first and second outlines of respective curvilinear distal edges of the fastening tabs. The first and second outlines on the front portion, of curvilinear distal edges, preferably are on opposing sides of the
30 longitudinal axis.

In some embodiments, the indicia represent at least first and second sets of outlines of curvilinear distal edges of the fastening tabs, the first and second sets of outlines, being on opposing sides of the longitudinal axis. Each set of

outlines preferably comprises a group of at least three outlines spaced transversely across the front portion of the personal care article at a common distance from the front edge, on the respective side of the longitudinal axis.

5 In some embodiments the indicia comprise a luminescent material having luminescent pigments that absorb light energy and radiate visible light when exposed to ultraviolet light. Such a material can comprise a luminescent paint including phosphors.

10 In some embodiments, the indicia comprise at least one transverse line extending across the personal care article, the at least one transverse line being substantially parallel to the front edge of the personal care article.

In some embodiments, the indicia comprise at least three spaced parallel lines having at least two different colors.

15 In some embodiments, the indicia do not indicate, or assist in, the transverse spacing of the fastening tabs when the tabs are secured to the front portion of the personal care article.

In another family of embodiments, the personal care article includes indicia on the substrate at the front portion defining a specific set of locations along a transverse dimension of the front portion, for securement of the fastening tabs onto the front portion of the personal care article.

20 In some embodiments each fastening tab comprises a tab base having a first width, and a terminal tab element having a second width narrower than the first width, extending from the tab base, each tab base including second indicia extending along an edge thereof and cooperating with the first indicia to guide a user to bring the first and second indicia into alignment with each other when the fastening tabs are secured to the front portion of the personal care
25 article, the first indicia, when so aligned with the second indicia, being spaced from the respective terminal tab elements.

30 In some embodiments, the first indicia include first and second lines parallel with each other and parallel with the front edge, and the second indicia include third and fourth lines on each tab base parallel with each other, the first and second lines being aligned with the third and fourth lines when the fastening tabs are guidedly secured to the front portion, the terminal

tab elements thus being secured to the front portion between, and spaced from, the first and second lines.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 shows a top plan view of a first embodiment of personal care articles of the invention.

5 FIGURE 2 shows a top plan view of the opposite side, including an outer cover, of the personal care article of FIGURE 1.

FIGURE 3 shows a pictorial view of the personal care article of FIGURE 1 having the fastening tabs properly secured to the front portion of the personal care article.

10 FIGURE 4 shows a pictorial view of another embodiment of personal care articles of the invention having multiple indicia.

FIGURE 5 shows a top plan view of another embodiment of personal care articles of the invention.

15 FIGURE 6 shows a top plan view of yet another embodiment of personal care articles.

FIGURE 7 shows a pictorial view of the personal care article of FIGURE 6 having the fastening tabs properly secured to the front portion of the personal care article.

20 The invention is not limited in its application to the details of the construction and the arrangement of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments or of being practiced or carried out in various ways. Also, it is to be understood that the terminology and phraseology employed herein is for purpose of description and illustration and should not be regarded as limiting.

25 Like reference numerals are used to indicate like components. The drawings are for purposes of illustration, and are not necessarily drawn to scale.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

5 The various embodiments of the present invention will be described in relationship to their use in disposable personal care articles, but it should be understood that potential uses of the structures of the present invention need not be limited to the context of disposable personal care articles. Other uses for the present invention include other articles, such as caps, gowns, shoe covers, feminine care articles, incontinence garments, and the like.

10 As used herein and in the claims that follow, the phrase "personal care article" is meant to include adult incontinence articles, feminine hygiene products, articles which have no significant absorbent function, but which receive and/or store urine and/or fecal material, and articles which do have a significant absorbent function, and which receive and/or store urine and/or fecal material.

15 Personal care article 8 having a longitudinal axis 9, shown in FIGURES 1 and 2, includes a front portion 10 having a front edge 12, a rear portion 14 having a rear edge 16, and a crotch portion 18 between front portion 10 and rear portion 14. Longitudinal axis 9 extends through the center of front portion 10, rear portion 14, and crotch portion 18. Personal care article 8 includes a substrate 20 including an outer cover 22 and a bodyside liner 24 in facing relation with each other. Absorbent body 26 preferably is located between bodyside liner 24 and outer cover 22. Absorbent body 26 receives and retains exudates which pass through bodyside liner 24. Leg cuffs 28 extend longitudinally along opposing outer edges of the crotch portion.

25 FIGURE 1 is a representative plan view of personal care article 8 in its uncontracted state (i.e. in its fully stretched-out condition). The left side of crotch portion 18 of personal care article 8 is cut away to better show outer cover 22 and absorbent body 26. Rear edge 16 is substantially parallel to front edge 12 when personal care article 8 is fully stretched out as in FIGURE 1.

30 In the embodiment illustrated in FIGURE 1, fastening tabs 30A, 30B are secured to bodyside liner 24 by ultrasonic bonding at opposing sides of rear portion 14 of personal care article 8. Fastening tabs 30A, 30B extend outwardly from the sides of rear portion 14. Each fastening tab 30A, 30B includes an

inner surface 31 and an outer surface 32 (shown in FIGURE 2). Each fastening tab 30A, 30B further includes securing elements 33, 34 permanently attached to the fastening tabs at inner surface 31.

5 Front ears 36A, 36B are secured to substrate 20 by ultrasonic bonding at opposing sides of front portion 10 as shown in FIGURE 1.

Waist elastics 38, 40 are located near front edge 12 and rear edge 16, respectively, of personal care article 8.

10 In use on a wearer, securing elements 33, 34 secure fastening tabs 30A to front portion 10 of personal care article 8, thereby to maintain the article suitably mounted on the wearer. Securing element 33 is located proximate the distal edge of each respective fastening tab 30A, 30B. Additional securing element 34 directly assists securing element 33 in resisting release of fastening tab 30A in spite of forces transferred from rear portion 14 of personal care article 8 and through the fastening tab.

15 As representatively shown, bodyside liner 24 and outer cover 22 may be generally coextensive and may have length and width dimensions which are generally larger than the dimensions of absorbent body 26. In the illustrated embodiments, bodyside liner 24 is associated with and generally superimposed over the entirety of the surface of outer cover 22, thereby defining the
20 periphery of personal care article 8. Absorbent body 26 is optionally disposed between outer cover 22 and bodyside liner 24 inboard of the periphery of article 8.

FIGURE 2 shows a representative plan view of personal care article 8 in its uncontracted state (i.e. fully stretched out) wherein outer cover 22 is the side
25 being viewed. Thus FIGURE 2 represents the opposite side of personal care article 8 compared to the view of FIGURE 1. First indication symbolism 42 comprises indicia visible at, and optionally located on, outer cover 22 at front portion 10. First indication symbolism 42 comprises lines 44A, 44B extending across front portion 10 substantially in parallel with respect to each other.
30 Parallel lines 44A, 44B are also substantially parallel with respect to front edge 12 of personal care article 8. Parallel lines 44A, 44B are located respective predetermined distances from front edge 12. Parallel lines 44A, 44B are substantially perpendicular with respect to, and extend across longitudinal

axis 9. Longitudinal axis 9 tends to divide personal care article 8 into two equal, longitudinally extending sections as shown in FIGURES 1 and 2.

Second indication symbolism 46 comprises indicia visible at, and optionally located on outer surface 32 on respective fastener tabs 30A, 30B. As
5 illustrated in FIGURE 2, second indication symbolism 46 can comprise first and second substantially parallel lines 48A, 48B extending across substantially the entire length of outer surface 32 of a fastening tab 30A. Parallel lines 48A, 48B are also substantially parallel to rear edge 16 of personal care article 8. In placing personal care article 8 on a wearer, an installer utilizes second
10 indicia 46, in combination with first indicia 42 as a guide, in fitting the personal care article to a wearer, such that fastening tabs 30A, 30B are positioned a correct predetermined distance from front edge 12 of the personal care article when secured to front portion 10.

As better illustrated in FIGURE 3, fastening tabs 30A, 30B are secured to
15 front portion 10 of personal care article 8 such that lines 44A, 44B of first indicia 42 are aligned with lines 48A, 48B of second indicia 46. In this manner, fastening tabs 30A, 30B are secured to front portion 10 of personal care article 8 at a predetermined distance from front edge 12. Second indicia 46, comprising lines 48A, 48B, may physically overlie a portion of first indicia 42
20 when fastening tabs 30A, 30B are secured to front portion 10. Therefore, in use, indicia lines 48A, 48B on fastening tabs 30A, 30B and indicia lines 44A, 44B on front portion 10, in combination, substantially give the appearance of a single, preferably uninterrupted pair of lines extending across the fastening tabs and across substantially the entire front portion of personal care article
25 8. Thus, second indicia 46 assist in locating fastening tabs 30A, 30B a predetermined distance from front edge 12 of personal care article 8 when secured thereto.

Further, when indicia lines 48A, 48B are properly aligned with indicia lines 44A, 44B on front portion, the lines assist in positioning fastening tabs 30A,
30 30B such that the lengths of the tabs are substantially parallel to front edge 12 of personal care article 8. Thus proper longitudinal alignment of the tabs on the front panel is ensured.

In an embodiment having single first and second indicia lines 44A, 48A (not shown), the combination of indicia lines, when properly placed, resembles a single line extending across fastening tabs 30A, 30B and across substantially the entire front portion 10.

5 In use, a user can readily install a personal care article 8 on a wearer, with certainty as to the proper position of fastening tabs 30A, 30B. As shown in FIGURE 3, the securing of fastening tabs 30A, 30B to front portion 10 encloses, and thus forms, leg openings 49 to correspond in shape to the leg of a wearer.

10 Outer cover 22 preferably comprises a material which is configured to be substantially impermeable to liquids. For example, a typical outer cover 22 can be manufactured from a thin plastic film, or other flexible liquid-impermeable material.

In some embodiments, outer cover 22 is a polyethylene film having a thickness
15 of from about 0.012 millimeters to about 0.051 millimeters. Alternative constructions of outer cover 22 may comprise a woven or non-woven fibrous web layer which has been totally or partially constructed or treated to impart desired levels of liquid impermeability to selected regions thereof, such as regions that are adjacent or proximate absorbent body 26. Optionally, in some
20 embodiments, an additional outer cover may overlie, or partially overlie, outer cover 22.

Outer cover 22 may optionally be composed of micro-porous, breathable material that permits vapors to escape from the personal care article while preventing liquid from passing through. For example, a suitable microporous
25 film is a material known as PMP-1, which is available from Mitsui Toatsu Chemicals, Inc. a company having offices in Tokyo, Japan; or polyolefin film known as XKO-8044 and available from 3M Company of Minneapolis, Minnesota.

In another embodiment of the invention, outer cover 22 can be a nonwoven, spunbonded polypropylene fabric composed of formed into a web. The fabric can
30 be creped or necked such that it is extensible in at least one of the "x" and "y" directions. Other materials having other advantageous characteristics are also useful as outer cover 22. For example, outer cover 22 can comprise a stretch-bonded laminate.

Bodyside liner 24 includes a skin-facing surface which is compliant, soft-feeling, and non-irritating to the wearer's skin. Further, bodyside liner 24 should be sufficiently porous to be liquid permeable, permitting liquid to penetrate through its thickness.

5 Suitable bodyside liners 24 may be manufactured from a wide selection of web materials, such as porous foams, reticulated foams, apertured plastic films, woven and/or nonwoven natural or synthetic fibers, or a combination of natural and synthetic fibers. Bodyside liner 24 is typically employed to help isolate the wearer's skin from liquids held in absorbent body 26. Various woven and
10 nonwoven fabrics can be used for bodyside liner 24. For example, bodyside liner 24 may be composed of a meltblown or spunbonded web of polyolefin fibers. Bodyside liner 24 may also be a bonded-carded-web composed of natural and/or synthetic fibers.

 Bodyside liner 24 may be composed of a substantially hydrophobic and
15 substantially nonwetable material, with the hydrophobic material preferably being treated with a surfactant or otherwise processed to impart a desired level of wettability and hydrophilicity.

 In another embodiment of the invention, bodyside liner 24 can be a nonwoven, spunbonded polypropylene fabric composed of fibers formed into a web. The
20 fabric can be creped or necked such that it is extensible in at least one of the "x" and "y" directions.

 Bodyside liner 24 may comprise a multiplicity of components, layers, or partial layers, which correspond to any of the materials disclosed herein, as well as others known in the art. The material can be treated with a selected
25 amount of surfactant, such as about 0.28% Triton X-102 surfactant available from Rohm and Haas Corp. of Philadelphia, Pennsylvania. The surfactant can be applied by any conventional means such as spraying, printing, brush coating or the like.

 Bodyside liner 24 can also comprise a bonded carded web having the necessary
30 characteristics and properties.

 In yet another embodiment of the present invention, bodyside liner 24 can comprise a stretch-bonded laminate having appropriate elasticity and width to create general overall surface contact between generally the entirety of the

body-facing side of personal care article 8 and the body of a wearer. A stretch-bonded laminate comprises at least a two-layered composite in which one layer is a gatherable layer and the other layer a stretchable layer. The layers are joined together when the stretchable layer is in a stretched condition so that, upon relaxing the composite of the joined layers, the gatherable layer is gathered. The stretchable layer can be a film of stretchable material, such as a layer of styrene ethylene butylene styrene copolymer or other elastomeric polymer, or a plurality of strands of a stretchable material such as latex or LYCRA®. Other materials with similar properties may also, in the alternative, be provided integral with or attached to bodyside liner 24. Such materials should not interfere with the soft texture of bodyside liner 24 against the skin of a wearer.

In embodiments where substrate 20 comprises an extensible outer cover 22 and an extensible bodyside liner 24, indicia 42 generally comprise substantially parallel lines 44A, 44B, when personal care article 8 is fully stretched out. However, when configured for mounting to a wearer, lines 44A, 44B may bend or form a bow shape as a result of the forces on, and changing shape of, substrate 20.

Absorbent body 26 may be manufactured from a wide variety of materials in a wide variety of sizes, and in a wide variety of shapes such as rectangular, trapezoidal, T-shape, I-shape, hourglass shape, etc. The size, and absorbent capacity of absorbent body 26 should be compatible with the size of the intended wearer and the anticipated liquid loading imparted by the intended use of the absorbent body.

Absorbent body 26 suitably comprises a matrix of hydrophilic fibers, such as a web, or webs, of cellulosic fluff, preferably in combination with a high-absorbency material commonly known as superabsorbent material. In a preferred embodiment, absorbent body 26 comprises a mixture of superabsorbent hydrogel-forming material and wood pulp fluff. In place of the wood pulp fluff, one may use synthetic, polymeric, or meltblown fibers or a combination of wood pulp fluff, synthetic fibers, polymeric fibers, meltblown fibers, and/or natural fibers. The superabsorbent material may be substantially homogeneously mixed

with the hydrophilic and/or hydrophobic fibers or may be otherwise combined into the absorbent core.

5 Absorbent body 26 may comprise a laminate of fibrous webs and superabsorbent material, or may comprise other suitable structure operative to maintain superabsorbent material fixed in position at desirable locations in the absorbent body.

10 The high-absorbency material in absorbent body 26 can be selected from natural, synthetic and/or modified natural polymers and materials. The high absorbency materials can be inorganic materials, such as silica gels, or organic compounds, such as cross-linked polymers. The term cross-linked refers to any means for effectively rendering normally water-soluble materials substantially water insoluble but swellable, whereby absorbent properties are available but the swelled material is substantially immobile after absorbing water-based liquids. Such means can include, for example, physical entanglement, 15 crystalline domains, covalent bonds, ionic complexes and associations, hydrophilic associations such as hydrogen bonding, and hydrophobic associations or Van der Waals forces.

Leg cuffs 28 are formed from separate materials, preferably leg elastics, which are attached to outer cover 22 and/or bodyside liner 24. Materials 20 suitable for forming the leg elastics include LYCRA® strands, ribbons, or one or more layers of a polymeric and/or elastomeric material which may be adhered in personal care article 8, thereby forming leg cuff 28 while the leg cuff material is in a stretched condition. Alternatively, the leg cuff material can be attached to personal care article 8 while the article is pleated and the leg 25 cuff material is in a relaxed condition, such that elastic retractive forces are imparted to leg cuff 28 when the leg cuff is elongated along the length of the personal care article.

30 In some embodiments, especially where outer cover 22 and bodyside liner 24 are formed from stretchable materials, extensible leg cuffs need not be included in personal care article 8.

Securing elements 33, 34 preferably comprise hook components, such as microhooks, of a hook and loop fastening system. The hook components are employed to secure fastening tabs 30A, 30B to front portion 10 of personal care